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ABSTRACT

The relationship of socioeconomic status and family structure to physical and psychological growth was investigated among urban African preschool children. A total of 300 children between 3 and 7 years of age were tested on the McCarthy Scales of Children's Abilities. Height and weight were measured and information about children's background was obtained from their primary caretaker through interviews or questionnaires. Findings indicated that performance on the test was related only to the educational levels of mother and father. No other socioeconomic or family variables investigated were associated with the ability measures. Physical growth was indirectly related to socioeconomic status through its association with household size and father absence. No relationship was found between physical growth and psychological performance. (Author/RH)

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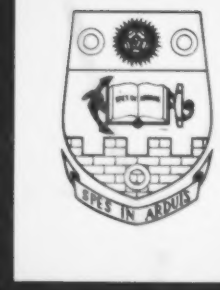

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THE INFLUENCE OF FAMILY BACKGROUND ON THE GROWTH AND DEVELOPMENT OF BLACK PRESCHOOL CHILDREN IN SOUTH AFRICA

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THE INFLUENCE OF FAMILY BACKGROUND ON THE GROWTH AND DEVELOPMENT OF BLACK PRESCHOOL CHILDREN IN SOUTH AFRICA

SUMMARY

The relationship between socioeconomic status and family structure on the one hand, and physical and psychological growth on the other, was investigated amongst urban African preschool children. Three hundred children between 3 and 7 years of age were tested on the McCarthy Scales of Children's Abilities. Height and weight were measured and information about their background was obtained from their primary caretaker through interviews or questionnaires. The results indicated that performance on the test was related only to the educational levels of mother and father. No other socioeconomic or family variables investigated were associated with the ability measures. Physical growth was indirectly related to socioeconomic status through its association with household size and father absence. No relationship was found between physical growth and psychological performance.

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THE INFLUENCE OF FAMILY BACKGROUND ON THE GROWTH AND DEVELOPMENT OF BLACK PRESCHOOL CHILDREN IN SOUTH AFRICA

INTRODUCTION

Failure and "dropping out" amongst young black children in their first three years of schooling present a significant educational and social problem in South Africa. As an illustration, official statistics indicate that in excess of 300,000 children of 7 years or younger started school in 1975. Only 200,000 passed the first grade at the end of that year and only 150,000 passed the second grade at the end of 1976. By the end of the third year, only 42% of the original figure, that is 126,000 children, passed their next year of schooling (Department of Education and Training, Annual Report 1976-1979).

Education is one of the many areas of social life in which black South Africans have suffered unfair discrimination. For example, although there are almost five times as many black pupils as white, the education budget for whites is nearly twice that for blacks (Hartshorne 1985). As a consequence, facilities are poor, classes are overlarge and teachers are young, inexperienced and underqualified. In addition, schooling has been interrupted periodically and teacher morale affected by the political expressions of scholars since 1976.

Apart from the obvious defects in the education system, black South Africans occupy the lowest socioeconomic stratum of the society. One might therefore expect that early biophysical and social disadvantages may be compounded as children grow,

consistent with what has been called the "cumulative deficit hypothesis" (Saco-Pollit et al 1985). It is no doubt true that the situation of black South Africans can be understood according to Lewis' description of the "culture of poverty". Nonetheless, the danger that notions of "cultural deprivation" or "cultural deficiency" can function as rationalisations for the inequities of sociopolitical structures and the failures of educators should be kept in mind. Such concepts can be used to give the impression that the identified problems lie **within** the group rather than within the structural properties of the society (Howard & Scott 1981, Short 1984).

The present study investigated the role played by socioeconomic status and aspects of family structure in determining the levels of physical and psychological development of preschool black children in South Africa. In highly industrialised countries socioeconomic status has been linked consistently with both physical growth (Eichorn 1979) and cognitive development (Mumbauer & Miller 1970, Rutter et al 1970, Broman et al 1975). Children from the lower classes tend to be smaller and to achieve less well on tests of intellectual development than children from the middle and upper classes. Aspects of family life, such as father absence (Shinn 1978), family size and birth order have also been associated with intellectual and physical growth (Mednick et al 1985). The question arises regarding the extent to which these dimensions have the same impact on childrens' development in other sociopolitical and cultural milieus (Serpell

1984). According to Heyneman (1976), for example, there may be evidence to suggest that the influence of socioeconomic status may be smaller in lesser developed societies. There have also been very few studies of the relationship between aspects of family structure and childrens' development, at least in Africa.

METHOD

Subjects

The 300 children, 154 males and 146 females, had an average age of 4,5 years, and a range between 3 and 7 years. Their average weight was 92,07% (s.d = 13,89) of the 50th percentile of the National Centre for Health Statistics (NCHS) growth curves, and their average height was 96,6% (s.d. = 5,6) of this same standard (Hamill et al 1977). They came from households which represented all the major ethnic groups in the country, and over 60% came from tribally mixed families. The children were recruited through care and communi- centres, creches and preschools situated in the black residential areas surrounding the two most industrialised regions in South Africa, the Pretoria-Witwatersrand and Durban-Pietermaritzburg areas. More detailed information regarding the socioeconomic status and family structure of the sample is given in Table I.

TABLE I - SOCIOECONOMIC STATUS AND FAMILY STRUCTURE

Household size	x = 6,8 (s.d. = 2,9, range = 2-19)	
Children per mother	x = 3,3 (s.d. = 3,3, range = 1-12)	
Birth order	13 % only children	7 % oldest
	40 % middle	39% youngest
Family type	51 % nuclear families	
	22 % nuclear plus additional members	
	17 % unmarried mothers living with family of origin (i.e. dependent)	
	9 % independent woman-headed families	
Mother education	<6 years	15%
	7-10 years	55%
	>10 years	30%
Father education	<6 years	13%
	7-10 years	58%
	>10 years	29%
Mother occupation	White collar and above	22%
	Skilled and semi-	7%
	Manual labour	38%
	Unemployed	33%
Father occupation	White collar and above	34%
	Skilled and semi-	28%
	Manual labour	30%
	Unemployed	8%
Father income	x = R363 per month	(1R = 0,39$c at the time of writing)
Mother income	x = R190 per month	
Household income	x = R442 per month	

Procedure

The McCarthy Scales of Children's Abilities (MSCA, McCarthy 1970) was used as the measure of the children's psychological development because it was specifically designed to be interesting to young children, to span the pre-school and early school years and to be fair to both sexes from various ethnic and regional groups (La Veck & Hammond 1982). The standardisation was comprehensive and included an adequate representation of ethnic minority children (Valencia & Rankin 1985). The concurrent (Krohn & Traxler 1979) and predictive validity (Massoth 1985) of the test are good, and the division of the test into 5 index scores is supported by factor analytic studies (Teeter 1984). Several investigations in the United States have indicated that the test is not unfair to black children matched for socioeconomic status with whites (Kaufman & Kaufman 1973, Kaufman & DiCuio 1975). In addition, two studies in Africa have found that the test is not unduly biased and that well nourished urban African children achieve scores on the indices which are equivalent to the American mean (Ashem & Janes 1978, Richter-Strydom et al 1985).

The test was translated into 3 major African languages (Zulu, Tswana and Northern Sotho) and administered to each child in the vernacular. Two verbal subtests (Word Knowledge and Opposite Analogies) were omitted because of the difficulty in finding conceptually equivalent translations of this material without extensive background research. As a result, no Verbal Scale Score or General Cognitive Index could be calculated. However,

the four remaining Scale Scores could be computed and subtest scores were converted to age-independent T-scores on the basis of the means and standard deviations of the American standardisation sample.

Information regarding the family structure and socioeconomic status of the family of each child was gathered from the primary caretaker (usually the mother) through either interviews or questionnaires. As no established index is available for black South Africans, parental levels of education, occupation and monthly income were all used as measures of socioeconomic status (Gottfried 1985). It should be noted however, that the reliability of monthly income data is not good. Many women do not know what their husbands earn and some respondents attempt to inflate or alternatively disguise the wealth of their households. The family structure variables investigated in the study were household size, number of children born to each mother, birth order, presence or absence of the father, and nature of the family constellation. In this study a distinction was made between nuclear families, nuclear families which were supplemented by additional members, families consisting of unmarried women and her children who were dependents upon her family of origin, and independent woman-headed households. A large number of fathers are absent from black urban households. The reasons for this are complex, but are not primarily due to the fathers being migrants and working away from the home. Delay of marriage while appropriate bride-price is being amassed and desertion are the main reasons given for the absence of fathers

(Richter et al 1986).

RESULTS

The relationship between psychological performance, physical growth, socioeconomic status and family structure

The measures of psycnological performance, growtn, family structure and socioeconomic status were intercorrelated. In view of the large sample and the large number of variables involved, a 1% level of significance was required throughout. The four Scale Scores (Perceptual-Performance, Memory, Motor and Quantitative) correlated highly with one another and with education levels of both mother and father. There was a negative correlation between three of the Scale scores, excluding the Motor Scale, and age. No other measures, either of growth, family structure or socioeconomic status, correlated significantly with the McCarthy measures. The significant relationships are shown in Table II.

TABLE II - CORRELATIONS BETWEEN THE MSCA SCALES AND PARENTAL EDUCATION LEVELS AND AGE

	P-P Scale	Memory	Motor	Quant
P-P Scale		0,61	0,67	0,52
Mem Scale			0,37	0,61
Mot Scale				0,42
Age	-0,34	-0,56		-0,43
Mother Education	0,39	0,30	0,22	0,19
Father Education	0,34	0,23	0,21	0,31

The three measures of socioeconomic status, that is, parental education, parental occupation and income, were significantly intercorrelated with one another, as shown in Table III. The significant correlations between the family structure variables and socioeconomic status are also indicated in this Table. Household size was negatively correlated with father income and household income. However, household size and number of children per mother was positively correlated with father presence. On the other hand, the number of children per family was negatively related to education levels of both mother and father. In summary then, families tend to be homogeneous with relative parity in education, occupation and income occuring between husband and wife. The more educated parents have fewer children. When a father is present in the home, the household size tends to

increase mainly because the number of children in the family increases. These larger families are associated with lower levels of paternal and household income.

TABLE III - THE RELATIONSHIP BETWEEN MEASURES OF SOCIOECONOMIC STATUS AND FAMILY STRUCTURE

	Mother Ed.	Father Ed.	Mother Occ.	Father Occ.	House Size	Child/ Mother	Father Present
Mother Ed.		0,62					
Father Occ.		0,35	0,25				
Mother Inc.	0,48	0,43	0,58	0,26			
Father Inc.	0,22	0,40		0,46	-0,23		
House Inc.	0,32	0,39	0,27	0,53	-0,25		
House Size						0,26	0,35
Children/ Mother	-0,29	-0,34					-0,26

There were no significant relationships between physical growth as measured by height and weight, and any of the Scale or subtest scores of the MSCA. In addition, there were no direct relationships between parental education, occupation or income and physical growth. However, lower height and weight were both

significantly related to large household size and absence of the father from the home. The significant correlations are shown in Table IV.

TABLE IV - RELATIONSHIP BETWEEN WEIGHT, HEIGHT, HOUSEHOLD SIZE AND FATHER PRESENT

	Household Size	Father Present
Weight (% of standard)	-0,21	-0,26
Height (% of standard)	-0,21	-0,22

The effects of birth order and family constellation

A composite performance score was calculated by summing each child's performance on the four Scale scores of the MSCA. The effect of family constellation and birth order on these composite scores was examined by one-way analyses of variance. There was no significant difference in performance between only children, oldest, middle or youngest children ($F = 1,12$, $df = 3,116$). Nor was there any significant difference in performance between children who came from families of different constellations ($F = 2,27$, $df = 3,119$).

Psychological performance and physical growth relative to American standards

As stated previously, the weights of the children were, on average, 92% of the 50th percentile of the NCHS standards, and

height was, on average, 97% of this standard. The children were thus slightly shorter but quite considerably lighter than would be expected of a comparable sample of American children.

The mean Scale scores for the four scales which could be computed were as follows:

Perceptual-Performance	41,54 (s.d. = 10,01)
Memory	46,95 (s.d. = 11,13)
Motor	50,21 (s.d. = 9,97)
Quantitative	37,19 (s.d. = 8,21)

The American Scale scores are calculated to yield a mean of 50 and a standard deviation of 10. As can be seen, only the scores on the Quantitative Scale fell below one standard deviation of the American mean. Nonetheless, the scores in general, fall below what one would expect on the basis of the American standardisation sample. However, the mean scores of the children whose mothers fell into the highest educational group (that is, having more than 10 years of schooling) were considerably closer to the American mean for the Perceptual-Performance (46,8) and the Quantitative (41,1) Scales and above the American mean on the Memory (51,9) and Motor (53,2) Scales.

Decline in performance with age

Three of the scale scores, Perceptual-Performance, Memory and Quantitative, showed a significant decline with age. On closer examination, it became clear that there was a significant decline with age in performance on each subtest, excluding Pictorial Memory, Tapping and Draw-a-Child.

DISCUSSION

The generally lower levels of growth and psychological performance of the children as compared to American standards, are consistent with what could have been predicted from the overall low socioeconomic status of black people in South Africa. Lower levels of growth in comparison with white children, from the second year of life until adolescence, have been found amongst all of South Africa'a so-called non-white children, including Africans (Richardson 1978). The findings therefore confirm the expected relationship between socioeconomic status and physical and psychological development, but without specifying in what way the socioeconomic status of a particular family affects a child's development (Svanum et al 1982, Bogi. MacVean 1983).

In this study, the relationship between socioeconomic status and development was found to be specific in that parental education was found to be related to psychological performance, and household size and the presence of the father was found to be related to physical growth. It is likely that socioeconomic status affects childrens' development through the influence of factors associated with socioeconomic position but which are more proximal to the experience of the child. By this argument, it may be expected that higher levels of parental education may be associated with increased opportunities for experience, stimulation and exploration available to the child. As a result, children whose parents are more educated are likely to achieve higher levels of intellectual performance. Similarly, larger

families and smaller incomes due to the absence of a father would be expected to be associated with poorer nutrition, and consequently with less adequate growth (Mednick et al 1985).

No relationship was found between physical growth and psychological performance as assessed by the McCarthy Scales. Christiansen at al (1975) have argued that the extent to which physical growth affects the level of cognitive performance reaches a ceiling after which its effects are not discernible. The children in this study were small for age and sex, but they were within one standard deviation of the American mean in both height and weight. A similar finding, that is of no relationship between growth and cognitive performance, has been reported for normally growing school-aged children in Guatemala (Bogin & MacVean 1983).

The absence of significant differences in growth and performance due to birth order is consistent with other studies (for example, Lynch et al 1982, Mednick et al 1985). In fact , Schooler (1972) has argued that birth order effects reflect differences between, rather than within, families and may be more parsimoniously explained by family size and ultimately socioeconomic status. In contrast, father absence has often been associated with decrements in psychological performance. However, Svanum et al (1982) in a large study of father-present and father-absent families could not find any relationship with intellectual performance when socioeconomic status was controlled. They pointed out that it is the antecedents and consequences of father

absences which may affect childrens' development and that the meaning of a father's absence requires greater specification before it is related to detrimental effects on childrens' performance.

In this study, the performance of black preschool children was found to decline with age. Kaufman & Kaufman (1973) also found a decline in performance of Negro children in the United States from 6 years onwards, and speculated that the phenomenon could possibly be explained either in terms of a cumulative deficit or in terms of specific experiential deprivation. It is true, as would be expected, that the cognitive demands of the test increase with age (Kaufman & DiCuio 1975) and also that successful performance becomes more dependent upon acquired knowledge; for example, knowing how to count or knowing the names of colours or shapes. The decline in performance with age found in this group of children may reflect the failure of their first encounters with early education to equip them with a basic set of skills necessary for successful performance on tasks such as those required by the test (Miller & Meltzer 1978).

CONCLUSION

Black South African preschool children were found to be smaller than could be expected of their age and sex, and were also found to perform marginally below the American mean on a test of general psychological abilties. Both findings are consistent with the generally low standard of living of the majority of black South Africans. While smaller physical growth was found to

be associated with larger households and absent fathers, it had no effect upon the childrens' intellectual performance. It would therefore appear that, at least for the majority of children in the normal growth range, socioeconomic status rather than nutritional history, is a major determinant of intellectual achievement. Educational level, of both mother and father, seemed to be the most significant manifestation of the influence of socioeconomic status on the development of young urban children.

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